

# Biocultural Diversity: Moving Beyond the Realm of 'Indigenous' and 'Local' People

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*During the past decade the relationship between biodiversity and human diversity has received increased attention, resulting in the identification of what the Declaration of Belém calls an 'inextricable link' between biological and cultural diversity. Although the term biocultural diversity, introduced to denote this link, is being used increasingly, there has been little critical reflection on what it precisely refers to. I argue that it is used with particular reference to 'indigenous traditional' people, but that there is scope for extending its application within biocultural discourse. I therefore review the concept of culture and discuss what constitutes cultural values of the natural environment. I conclude that the concept of culture must be understood as involving a dynamic process of transcultural exchange and constant re-articulations of tradition resulting in the persistence of certain cultural practices. This approach ultimately reveals that the concept of biocultural diversity is also applicable to non-indigenous traditional communities.*

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**KEY WORDS:** natural environment; biocultural diversity; indigenous; culture; cultural values.

## INTRODUCTION

Over the past decade, scholars from various fields have increasingly emphasized the detrimental effects of global socioeconomic processes on biodiversity (Wood *et al.*, 2000). Machlis (1992) identifies the industrial revolution, the demographic explosion of *Homo sapiens*, and the rise of the

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global exchange economy as the major factors that influence human land use patterns and, ultimately, both the loss of biological species diversity and the erosion of the world's ecosystems. From the late 1980s onwards biosystematics and conservation biology have successfully brought these concerns to the attention of the public and as a result they are discussed almost daily in the media (Cunningham, 2001; Maffi, 2001). Biodiversity is increasingly recognized as an essential resource on which families, communities, nations, and future generations depend. Biologists, ecologists, and conservationists have further recognized that solutions to biological problems lie in the mechanisms of social, cultural, and economic systems, which has led to attempts to place monetary value on species and ecosystems in order to calculate the costs of using and conserving biodiversity. These approaches, however, failed to take into account the various ways in which different groups of people make use of biodiversity (Posey, 1999). Consequently, greater attention is now being paid to the relationship between biodiversity and human diversity largely because many of the planet's areas of highest biological diversity are inhabited by indigenous and traditional peoples, providing what the Declaration of Belém (1999) calls an 'inextricable link' between biological and cultural diversity (Posey, 1999). Although the term biocultural diversity, introduced (Posey, 1999) to denote this link, is used increasingly, there has been little critical reflection on what precisely it refers to. There also appear to be several misconceptions and inaccuracies concerning its meaning as reflected in the biases of the case studies selected to illustrate biocultural diversity, where the majority represent more "exotic" type communities which, by their very nature, are remote and isolated communities (Posey, 1999).

This review therefore aims to contribute towards a better understanding of what constitutes biocultural diversity. It is structured in three parts: Firstly, a review of the manner in which the theory has been applied to date. It will be argued that key concepts, particularly the use of the terms 'indigenous' and 'local' people, need extending. Currently the theory relies on the definition of these terms given by the Special Rapporteur of the United Nations Economic and Social Council Subcommittee on the Prevention of Discrimination and Protection of Minorities, a complementary contribution to the global biodiversity assessment (Posey, 1999, p. 3). Secondly, to demonstrate how the concept could be used beyond the realm of 'indigenous' and 'local' people, the concept of culture is reviewed. This is followed by a discussion of what constitutes cultural values of the natural environment. Finally, the implications of these extensions and evaluations on what constitutes a cultural value of the environment will be discussed in terms of management strategies that can be used to promote the conservation of biocultural diversity in developing countries.

The arguments presented are based on an extensive literature review and are supported by examples from primary research conducted by the author.

## **INTERPRETATIONS OF BIOCULTURAL DIVERSITY**

### **The Role of 'Indigenous' and 'Local' People**

Biocultural diversity denotes the link between biodiversity and human diversity. It is important to explicitly recognize the role played by human diversity in biodiversity conservation because biodiversity represents a source of raw material on which the processes of evolution depend. The less diversity there is, the greater the chance that life itself could be destroyed through lack of resilience to environmental change. Biodiversity needs to be maintained because it provides humans with different ways of understanding and interacting with the world and ultimately offers different possibilities for human futures (Milton, 1996).

Different cultures and peoples perceive and appreciate biodiversity in different ways because of their distinct heritage and experience (Posey, 1999). Most discussions on the intricate relationship between the conservation of biodiversity and cultural diversity center around the argument that cultural diversity can sustain a wide variety of use practices and the conservation of natural resources (Posey, 1999; McNeely, 2000). Examples of how 'indigenous' and 'local' people around the world have protected both individual species and entire habitats have led to the interest in linking biodiversity to human diversity. In many parts of the world natural features and habitats, often protected by religious taboos and considered sacred by community members, have survived due to strong cultural forces and today act as reservoirs of local biodiversity (Laird, 1999). For example, the Native American Menominee tribes have successfully held onto 100,000 ha of their native territory, almost all of which is still forested and contains the only significant concentration of old-growth tree stands in the now mostly deforested region of the upper mid-Western states (Groenfeldt, 2003). These areas generally form part of the surrounding communities' ancestral domains and are part of their cultural identity (Laird, 1999). From a more general perspective, they contribute to a people's sense of place (Kusel, 2001; Wiersum *et al.*, 2004). For instance, the Menominee tribes have a spiritual relationship with their forest representing a twinned identity for both the tribe and the forest (Groenfeldt, 2003). Thus, 'indigenous' and 'local' people are understood to ascribe symbolic significance to their surrounding landscapes and consequently perceive and value nature differently than

ecologically trained conservationists and biologists (Posey, 1999; Infield, 2001).

The importance of recognizing the traditional values of ‘indigenous’ and ‘local’ communities in forest and biodiversity conservation has been officially recognized by the Convention on Biological Diversity. Following this a UNESCO report states that “Sacred groves have served as important reservoirs of biodiversity, preserving unique species of trees, forest groves, mountains, rivers, caves, and temple sites and should continue to play an important role in the protection of particular ecosystems by local people” (Laird, 1999, p. 352). The literature cites an increasing number of examples of how non-industrial people live in harmony with their natural environment, such as rural communities in Hawaii (McGregor, 1999), the Kayapo Indians of Middle Xingu Valley in Brazil (Posey, 1999), and the Dai, an indigenous ethnic group in southwest China (Shengji, 1999). In contrast, industrial societies draw on a wide range of ecosystems, and if supplies from one source are exhausted or destroyed, they turn to another, and consequently are less likely to feel the need to protect any one resource or ecosystem (Milton, 1996).

Although the notion of an ‘ecologically noble savage’ has been challenged as overly romantic (Ellen, 1986; Redford, 1990; Milton, 1996; Posey, 1999; Berkes, 2001; Cunningham, 2001), many researchers and conservationists argue that numerous studies have proven how traditional ecological knowledge and practices have effectively served to protect and maintain natural environments (Posey, 1999; Wiersum, 2004; Berkes, 2001; Cunningham, 2001). However, the strong claims that all indigenous and local people are by nature conservationists can be easily undermined by counter-examples—species extinction due to human hunting in the prehistoric past, indigenous peoples who grant large timber cutting or mining concessions on their lands, etc. Moreover, indigenous and local people themselves have a variety of reactions to these claims (Cunningham, 2001, p. 6). More recent writings adopt a more pragmatic stance that stresses the practicality and urgency of coordinating local communities and conservationists (Orlove & Brush, 1996, p. 329). For example, Infield argues (2001, p. 801) that “promoting conservation in the context of local culture would endow protected areas with significance that an emphasis on biological diversity, landscape, or economies does not.”

The recognition of close links between the lifestyles of indigenous and local people and biodiversity is seen as crucial not only for the survival of biological diversity but sometimes also for the protection of cultural diversity by those who argue that the very same processes of global socioeconomic development that destroy biodiversity also cause local cultures to be swallowed up in the expansion of the global economy. For example, Dasmann

(1991) describes indigenous people all over the world as being eliminated or having their cultures shattered by invaders of their territories. Motte-Florac and Ramos-Elorduy (2002, p. 210) go as far as describing indigenous peoples and their knowledge as being on the verge of "imminent destruction." In light of these sentiments, it has been estimated that on average one Amerind group, in the Amazonian region, has disappeared for each year of the twentieth century (Motte-Florac and Ramos-Elorduy, 2002, p. 210).

### **Moving Beyond the Realm of 'Indigenous' and 'Local' People**

The definition of the term 'indigenous' is problematic in many parts of the world. Within the Convention on Biological Diversity the general consensus is that the term indigenous has been used to apply to people

who have historical continuity with pre-invasion and pre-colonial societies that have developed on their own territories, and who consider themselves distinct from other sectors of society now prevailing in those territories, or part of them. They form at present non-dominant sectors of society and are determined to preserve, develop and transmit to future generations their ancestral territories, their ethnic identity, as the basis of their continued existence as peoples, in accordance with their own cultural patterns, social institutions and legal systems. (Posey, 1999, p. 3)

Their modes of production and relations are typically subsistence and kin based, respectively. As a result they usually demonstrate restraint in resource exploitation and show a respect for nature that is characteristically reinforced by an animistic worldview that regards the spirit world as infusing all of nature. Similarly, according to the International Union for the Conservation of Nature ([www.iucn.org/themes/ceesp](http://www.iucn.org/themes/ceesp)), local communities are

commonly referred to as representing a socially and geographically defined group of people, not necessarily homogeneous, living close to natural resources and protected areas. These people may have customary rights of use, distinctive knowledge and skills and direct dependency on natural resources as individuals or groups of individuals. They are also described as having a close and unique relationship to their natural resources as a community.

Willett in Posey (1999) stresses the need to avoid becoming side-tracked by who qualifies as 'indigenous' or 'local' as the task at hand is rather to rekindle and enhance the spiritual and cultural values that cultures have effectively used to conserve biodiversity. Despite these calls for caution, less consideration has been given to the cultural values of forests and resources for communities that cannot be considered indigenous or local according to the above criteria, and whose lifestyles have been transformed by

modernization (Cocks & Wiersum, 2003). As the classification currently stands it fails to incorporate large sectors of the global population.

At present rural conditions are changing rapidly in many tropical countries, and the livelihood strategies of local communities are diversifying (Ellis, 1998; Wiersum & Shackleton, 2005) and becoming more and more integrated into a cash based economy. However, despite the effects of rapid urbanization, increased westernization and access to conventional western health care facilities, in southern Africa the use of traditional medicine remains high amongst urban black populations (Mander, 1998). The trade in traditional medicines has been described as greater now than at any time in the past (Cunningham, 1991; Mander, 1998; Dold & Cocks, 2002), estimated to be worth approximately \$44.4 (US)<sup>3</sup> million per annum, and as meeting the demands of approximately 27 million indigenous medicine consumers in South Africa (Mander, 1998). Nevertheless, the worldviews, cultural values and knowledge of large sectors of the population in Africa can no longer be classified as 'traditional' nor as representative of western culture. Despite changes, many communities are still reliant on wild resources both for utilitarian (Shackleton *et al.*, 2001; Campbell & Luckert, 2002; Shackleton & Shackleton, 2004) and cultural needs (Goebel *et al.*, 2000; Cocks & Wiersum, 2003; Cocks *et al.*, n.d.). Unfortunately, the focus of biocultural diversity theory on the more 'exotic' sectors of the population potentially can lead to the failure to comprehend the resilience, or rather the persistence, of culture and how networks of globalization are often used to maintain aspects of cultural practices linked to the use of natural resources.

### **Extending the Significance of the Concept of Biocultural Diversity**

For the biocultural diversity concept to have relevance and applicability to communities other than indigenous or local it is necessary to reconceptualize two of its key components. The first is the meaning of the word culture. Present thinking within the theory of biocultural diversity fails to take into account the multiple dimensions of culture, for example, how aspects of culture can be modified, adapted, and maintained despite changes a community might experience in its social and material context and its removal from precolonial residence areas. This is the result of a failure to acknowledge the resilience or persistence of certain dimensions of culture in the face of change, and the implications this might have for biocultural diversity.

<sup>3</sup>These values have been converted at exchange rate of \$1 = R6.07, January 2005.

Secondly, biocultural diversity theory makes repeated reference to the cultural functions and values of natural areas because the studies using the theory focus predominantly on areas such as sacred forests, rainmaking sites, landmarks, etc. (Posey, 1999; Goebel *et al.*, 2000). Cultural values are seldom extended to the resources harvested from natural areas and how these resources fulfill an important cultural value within the communities that utilize them. This is surprising in view of the fact that during the last decade there has been a greater focus on the role of forests and non-timber forest products (NTFPs) in fulfilling livelihood needs (Ruiz-Perez & Arnold, 1996; Wollenberg & Ingles, 1998) and affective needs such as a sense of belonging and identity (Douglas & Isherwood, 1997). Recent studies have even demonstrated that urban-based community forestry arrangements in Europe provide a sense of place and belonging (Kusel, 2001; Wiersum *et al.*, 2004) thus illustrating that a nature-related sense of cultural identity remains applicable to modernized communities. A review of the concept of culture and cultural value will show how this is possible.

## CULTURE

The concept of culture is multidimensional. As discussed above, it can be related to specific lifestyles and dominant modes of interaction with the natural environment, and to specific aspects of behavior such as the veneration of sacred forests. Traditionally the study of cultures was considered to be the specific domain of anthropology. But with the advent of interest in the cultural dimension of natural resource use, today the concept of culture forms the foundation of scientific disciplines such as ecological anthropology and scientific concepts such as biocultural diversity. In both these cases a basic premise is that the relationship between humans and their environments is mediated by culture (Laird, 1999; Posey, 1999; Berkes *et al.*, 2000).

Despite growing interest in the cultural dimensions of natural resource use there is still no clear common agreement on what the concept of culture encompasses. While it is not the purpose of this review to explore all the theoretical debates on the construction or deconstruction of the term culture, an attempt will be made to highlight how the concept, when used in the discourse of biocultural diversity, has been too narrowly perceived. Culture is commonly referred to as a system of values, beliefs, and ideas that social groups make use of in experiencing the world in mutually meaningful ways (Kuper, 1999; Berkes *et al.*, 2000). As a primary starting point, this approach fails to stress that these systems are creations of the researcher and not of the people described (Rapport & Overing, 2000). Furthermore, as Ingold so well explains, what researchers do not find are neatly bound and

mutually exclusive bodies of thought and custom, perfectly shared by all who subscribe to them, and in which their lives and works are fully encapsulated (Ingold, 2002). Thus, the definition of culture as an integrated system of values and beliefs fails to reflect culture as it is experienced. Groenfeldt provides an excellent example: “A Cherokee Indian medicine woman who lives in a solidly middle-class suburban community in Washington, D.C. has worked off and on in administrative jobs within the US Air Force, and has a growing clientele of mostly white Anglo patients with various physical and mental ailments. She heals by invoking spirit forces from the Cherokee pantheon and serving as a medium for their healing powers, as her grandmother taught her” (2003, p. 921).

This example shows that the Cherokee Indian medicine woman’s religious worldview is highly traditional, while her social and material cultural context is basically that of a mainstream American. Therefore, she is deliberately choosing from the cultural assemblage at her disposal (Groenfeldt, 2003). This approach to the concept of culture as a selective force has particular merit when trying to explain the phenomena that occur within societies where lifestyles have been affected and transformed by global processes and where the livelihood strategies of communities have become diversified. As Groenfeldt (2003) observes, peoples’ worldviews are maintained to a large extent even as their day-to-day lives are radically transformed.

The argument for considering culture as a selective force rather than as an integrated system is supported by Canclini (1995), who argues that the dominant substitution-retention models of cultural change associated with modernization and dependency theory have tended to direct attention away from the critical and complex processes of ‘intercultural hybridization.’ He argues, for example, that people in Latin America cannot “enter or leave modernity” as these “countries now are the product of the sedimentation, juxtaposition and inter-crossing of Indian traditions, of colonial Catholic Hispanism and of modern political, educational and communicative practices.” This does not occur as simple cultural syncretism but rather as dynamic processes of transcultural exchange, where the ‘modern’ fails to ‘substitute’ for the ‘traditional,’ resulting in constant rearticulations of tradition (Canclini, 1995).

This view is also illustrated in case studies from South Africa that describe ‘traditional’ cultural practices and activities which are still being performed in communities that have experienced social, economic, and political upheaval as result of the resettlement policy implemented by the former apartheid government (Bank, 2002; Cocks & Wiersum, 2003). This resulted in a large proportion of the rural community becoming reliant on cash income from adjacent urban areas and state welfare payments rather



than on subsistence economies. Apartheid also resulted in a breakdown of traditional rural structures, particularly those responsible for management of natural resources (Fabricius *et al.*, 2004). However, despite the onslaught of the apartheid regime and the ongoing impact of global economic change, cultural practices and activities have been recorded as taking on a new form, with women taking charge of certain aspects of ritual and custom that were largely men's responsibility in the past (Bank, 2002), although what is of more interest to this article is the resurgence of the importance of these practices within their respective communities.

The general consensus is "that something has (or appears to have) survived, persisted or continued and one cannot assume that incorporation into an industrial environment results in the complete overturning and replacement of what existed before" (Spiegel, 1997, p. 10). Canclini identifies this process as 'truncated innovation' as it is not a retreat into cultural essentialism but rather the creation of subtle crisscrossing links between different cultural orientations and experiences that have been mediated by the rearticulation of tradition (Canclini, 1995). People adopt different cultural perspectives under the all-embracing umbrella of culture and culture formation is always a relational process shaped both outside and within (Bhabha, 1996). These arguments demonstrate that within the discourse of biocultural diversity culture needs to be recognized as dynamic and having the ability to adapt and adopt under change. However, it is necessary first to discuss what constitutes a cultural value of the natural environment as it is believed to be too narrowly perceived and portrayed within the current discourse of biocultural diversity.

## **CULTURAL VALUES OF THE NATURAL ENVIRONMENT**

If it is accepted that different and dynamic cultural perspectives are possible under the all-embracing umbrella of culture, the question then becomes: how can cultural values in respect to the natural environment best be conceptualized? Thus far the cultural values of natural resources are often related only to components of the vegetation or fauna, e.g., forests as dwelling places for spirits, burial places for ancestors, sites for ritual ceremonies and sacred natural features such as springs and caves (Laird, 1999; Posey, 1999; Seeland, 1997). The cultural values of wild resources harvested by communities are far less acknowledged (Ingles, 1997). Case studies from South Africa, however, reveal that a cultural value does relate also to harvested wild resources. For example, Cocks *et al.* (n.d.) describe the significant role that wild resources play in the construction and maintenance of

cultural artifacts within peri-urban households. Vast quantities of woody material are collected annually by male household members for the maintenance of a *kraal*. This is often assumed to be a cattle enclosure, but the structure is maintained primarily as a scared place for the male lineage of the homestead to communicate with their ancestral spirits and receive their blessings and protection. The maintenance of a *kraal* is also a visual display of the household's ethnic affiliation and the significance the occupants attach to their ancestral belief. Similarly female household members of amaXhosa communities maintain an *igoqo*, often considered a stockpile of fuel wood located within the homestead yard. It is, however, seldom used for fuel wood purposes but represents a woman's domain, as it is where her ancestral spirits reside.

In another study in South Africa it was observed that urban residents still prefer using traditional grass brooms over industrially manufactured brooms because of the cultural significance they attached to the use of these brooms, e.g., as wedding presents, and for their ability to offer households protection from lightning attributed to sorcery (Cocks & Dold, 2004). The same preference is shown in the continued use of traditional medicines. In a study amongst the amaXhosa people it was found that approximately half of the medicinal plants purchased by urban black consumers were used to enhance a sense of spiritual well-being rather than to treat a physical ailment or complainant (Cocks & Møller, 2002; Cocks & Dold, n.d.). Interestingly, in a survey among schoolchildren it was observed that they believed that such cultural uses of wild plant resources would continue in the future, while more utilitarian uses, such as fuel, would be replaced by commercial goods (Cocks & Wiersum, 2003).

These examples clearly indicate that cultural values of the natural environment may take on several manifestations which relate not only to the religious roles of forests but also to wild resources<sup>4</sup> which are harvested from natural areas and traded with consumers living in peri-urban and urban communities. The fact that these practices are maintained in urban and resettlement areas demonstrates that cultural values concerning the use of wild plant resources are not restricted to traditional communities. Moreover, one does not have to live geographically close to the natural environment for it to hold spiritual, social, and cultural value. Wiersum and Shackleton (2005) describe how migrant families in southern Africa return to their ancestral lands to partake in cultural festivities and ceremonies featuring wild plants.

<sup>4</sup>The term wild plants has been used to distinguish between wild and domesticated species and not to suggest that the landscapes where they occur are virgin land or unaffected by human influence or tenure (Cunningham, 2001, p. 9). The term wild resources includes NTFPs, animals, insects, and marine species as well as vegetation units such as sacred forests, etc.

The major driving forces behind the continued use of wild plant resources as cultural artifacts by non-traditional people are diversification in rural livelihoods and increased mobility, as well as the incorporation of rural areas into commercial trade networks (Wiersum & Shackleton, 2005). Several recent studies in southern Africa reveal that, at present, in rural areas households are engaged in both on-farm and off-farm activities. Such multi-enterprise practices are often essential to the livelihood strategies of rural households as they help to reduce vulnerability and risk (Shackleton *et al.*, 2001). As a result, rural African communities are becoming increasingly incorporated in commercial networks (Ellis, 1998). Moreover, the increase in commercialization has resulted in an increase in sales not only of agricultural produce but also of wild resources and products (Campbell *et al.*, 2001; Sunderland & Ndoye, 2004; Wiersum & Shackleton, 2005). This includes selling both within villages (Cocks & Wiersum, 2003), between villages, to urban centers (Dold & Cocks, 2002; Cocks & Dold, 2004), and even across international borders, as seen in the international trade in wildlife and marine products (Kalland, 1999), often to fulfill cultural needs amongst immigrant communities living in developed countries.

### **IMPLICATIONS FOR BIOCULTURAL DIVERSITY CONSERVATION IN DEVELOPING COUNTRIES**

I have argued in this paper that the concept of culture must be understood as a dynamic process of transcultural exchange with constant re-articulations of tradition resulting in the persistence of certain cultural practices amongst any group of people. In developing countries traditional indigenous communities are changing (often rapidly) due to the impact of socio-economic processes such as the increase in diversification of rural livelihoods and of rural and urban linkages. Notwithstanding, as the examples above have shown, even people who have migrated to urban or peri-urban areas and become involved in modern economic sectors still to varying degrees maintain certain cultural practices, including the use of wild resources for maintaining a sense of well-being and identity. Thus, the theory of bio-cultural diversity should extend the term 'indigenous, local' people to include more varied social groups.

Several authors such as McNeely (2000), Cunningham (2001), Infield (2001), and Berkes (2001) have noted that approaches to conserving biodiversity that are based on cultural and religious values are often more sustainable than those based only on legislation or regulation. The recognition of the role of indigenous value systems has greatly contributed to the development of community-based natural resource management schemes

(Fabricius *et al.*, 2004). However, as noted by Redford (1990) and Ellen (1986), we need to be particularly careful of the uncritical belief in the inherent superiority of indigenous resource use systems for sustainable use and preservation of plant and animal diversity. As noted by Redford (1990), amongst the Amazonian Indians there is no cultural barrier to the adoption of techniques to 'improve' their lifestyles even if the long-term sustainability of their resource base is threatened. Such improvement strategies might include the sale of timber and mining rights to indigenous lands, commercial exploitation of flora and fauna, and invitations to tourists to observe 'traditional lifestyles,' etc. This note of caution is of particular relevance to communities in developing countries which have undergone rapid social, economic, and political changes. However, despite these changes, communities and individuals in South Africa continue to attach a strong cultural value to wild resources, although it should not be assumed that they make sustainable use of these resources. For instance, the continued use of wild medicinal plants has resulted in overexploitation in several cases (Cunningham, 1991; Mander, 1998; Williams *et al.*, 2000; Dold & Cocks, 2002).

Interpretations of these observations are often taken as an indication that continued use of natural resources based on traditional cultural values cannot be maintained if traditional livelihood strategies are threatened due to socioeconomic dynamics and increased rates of commercialization. Well-known examples of this opinion are the call for a halt on international trade of ivory and rhino horn, or the abolition of bush meat consumption in Central Africa. This indicates a somewhat ambiguous opinion concerning the importance of biocultural values. On the one hand, the use of indigenous values and practices of traditional communities is often heralded as a means of biodiversity conservation. But on the other hand, the continued use of such values and practices under more modern conditions is often considered to be detrimental to biodiversity conservation. It might be more useful to consider an alternative view taking the dynamics in biocultural values as a starting point for additional approaches towards community-based conservation. Such approaches should not only focus on preserving wilderness areas, but also on conserving locally-valued biodiversity in agricultural landscapes. In this way, biocultural values could contribute towards the creation of diversified landscapes which transcend the accepted dichotomy between wilderness areas and cultured fields. Within such local landscapes, local people may purposefully conserve the biodiversity which they value. An example of such an approach is the recent effort to stimulate domestication of medicinal plants. Recent experiences in South Africa illustrate that such conservation efforts should be fully cognizant of the cultural values of medicinal plant use. Authors such as Prins (1996) have claimed that the procedure surrounding the collection of medicinal plants from the wild is

an important dimension in the cultural use of such plants. Observations of farmers experimenting with the growing of medicinal plants indicate, however, that the cultural beliefs regarding the need to collect medicinal plants in the wild are probably less resilient than the belief in their impact on personal well-being (Wiersum *et al.*, in press).

In developing countries, including South Africa, it is of paramount importance that biodiversity conservation programs develop awareness campaigns which illustrate the link between cultural and biodiversity conservation as well as the diversity and dynamics of cultural values regarding biodiversity. Biodiversity conservation programs should include a careful adaptation of the multitude of cultural values regarding biodiversity to newly emerging socio-economic conditions. Local communities and individuals as well as conservationists need to be made aware not only of the link between the loss of the natural habitat and their cultural practices, but also of the options for incorporating cultural values into novel biodiversity conservation approaches. It is believed that the implementation of such educational campaigns would have far greater success than species-focused conservation approaches, which are perceived to be of benefit only to the elite.

I therefore conclude that culturally-conscious programs for conservation of biodiversity should pay attention to the links between the values of biodiversity and the cultural values within both indigenous and non-indigenous communities. My identification of a variety of cultural practices in the use of wild plant resources by people living under non-traditional conditions underlines the more theoretical argument that biocultural discourse must extend its present focus on 'indigenous' people. This is necessary to ensure an increased understanding of the role of wild resources in the lives of all users, as well as to identify new approaches to link the continuation of multifaceted cultural practices relating to the use of wild resources with biodiversity conservation.

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